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EXAMINER
UNGAR, SUSAN NMN

ART UNIT	PAPER NUMBER
1642	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/709,131	GARTENHAUS, RONALD B.	
	Examiner	Art Unit	
	Susan Ungar	1642	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on *18 May 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☐ Claim(s) *14-17,32-37 and 40-47* is/are pending in the application.

4a) Of the above claim(s) *14-17 and 42-47* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) *32-37,40 and 41* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *3/30/01,6/8/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

1. The Election filed May 18, 2006 in response to the Office Action of March 16, 2006 is acknowledged and has been entered. Claims 14-17, 32-37, 40-47 are pending in the application and Claims 14-17, 42-47 have been withdrawn from further consideration by the examiner under 37 CFR 1.142(b) as being drawn to non-elected inventions. Claims 32-37, 40-41 are currently under prosecution.

2. Applicant's election without traverse of Group I, claims 32-37, 40-41 in the paper filed May 18, 2006 is acknowledged.

Specification

3. The specification on page 1 should be amended to reflect the status of the parent application serial number 60/085,029. It is noted that Applicant claims priority to a provisional patent application. This is not appropriate. The appropriate form is as follows:

"This application claims benefit to provision application **********, filed **, now abandoned."

Appropriate correction is required.

Claim Rejections - 35 USC § 101

4. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

5. Claims 32-37, 40-41 are rejected under 35 U.S.C. 101 because the claimed invention is not supported by a substantial utility.

The claims are drawn to an antibody which binds with specificity to a portion of MCT-1, SEQ ID NO:8 or amino acids 1-114 of SEQ ID NO:2, a

pharmaceutical composition comprising said antibody and a kit comprising said pharmaceutical composition and a reagent for detecting the antibody.

The specification teaches that the polynucleotide encoding SEQ ID NO:8, MCT-1 polypeptide, was isolated from a T-cell malignancy cell line, the HUT 78 cell line, wherein it was found that the MCT-1 gene was amplified (p. 40, lines 14-17). The novel gene was named MCT-1, for Multiple Copies in T-cell malignancy (p. 6, lines 16-17). The encoded polypeptide was expressed and isolated and antibodies which bind with specificity to MCT-1 were generated (p. 18, lines 7-15 and p. 47, lines 1-7). The specification teaches that residues 8 to 65 of SEQ ID NO:8 are highly similar to a region of cyclin H protein (with an identity of 32% to a 58 amino-acid-residue domain, see p. 38, lines 27-30) which has been implicated in protein-protein interactions and thus it is recognized that this region of MCT-1 is **likely to be** (emphasis added) at least a significant portion of MCT-1 which interacts with the proteins by means of which MCT-1 exerts its biological effect (p. 17, lines 23-30). Since the region of homology between MCT-1 and cyclin H covers a region of cyclin H that spans a surface domain of the protein that is putatively involved in protein-protein interactions and the non-homologous regions of MCT-1 and cyclin H correspond to regions of random coil within the cyclin H molecule, MCT-1 **may be predicted to exhibit high structural homology** (emphasis added) with cyclin H. Thus, the homologous region of MCT-1 may also be involved in protein-protein interactions and MCT-1 was hypothesized to have a role in cell cycle regulation (p. 39, lines 4-10). The specification further teaches that the invention includes a method of determining whether a cell is a tumor cell comprising comparing MCT-1 expression in a tumor cell and MCT-1

expression in a non-tumor cell, wherein a difference in expression is indicative that the cell is a tumor cell (para bridging pgs 4-5).

Because MCT-1 was localized to chromosomal bands Xq22-24, primary samples from patients afflicted with either CTCL (n-40) or chronic lymphocytic leukemia (n-20) were assayed for MCT-1 amplification. However MCT-1 amplification was not detected in any of these primary cancer samples. The specification states that nonetheless, it appears that MCT-1 overexpression contributes to deregulated cell cycle progression and proliferation *in vitro* (p. 40, lines 14-20) in some cell lines.

The specification exemplifies the characterization of MCT-1 which is amplified in a cutaneous T-Cell Lymphoma Cell line and demonstrates that constitutive expression of MCT-1 in NIH 3T3 cells shortens the G1 phase of the cell cycle and promotes anchorage independent growth (p. 37, lines 3-6). The specification further teaches that antibodies which bind with specificity to MCT-1 are useful for detecting the presence of MCT-1 in a cell and thus can be used to determine whether a cell is a tumor cell (p. 18, lines 10-15).

Given the teaching of the specification it appears that the disclosed utilities for the polypeptide to which the claimed antibody binds include (1) predicted protein-protein interaction, apparently based on a 32% sequence identity over a range of 58 amino acids with a putative protein binding domain of cyclin H, (2) hypothesized, but unidentified, role in cell cycle regulation based on predicted structural identity to cyclin H wherein MCT-1 has a 32% identity to a 58 amino acid region of the protein-protein binding domain of cyclin H and non-homologous random coil regions, (3) diagnosis of cancer. However, neither the specification nor any art of record teaches what MCT-1 protein is, what it does do, do not teach

a relationship to any specific diseases or establish any involvement in the etiology of any specific diseases.

As drawn to utility (1), predicted protein-protein interaction, it is clear that this is not a substantial utility as additional work must be done in order to determine to which protein MCT-1 binds and the effect of this binding.

As drawn to utility (2), hypothesized role in cell cycle regulation, it is noted, for Applicant's information, that a search by the Office of the issued patent, published application, UniProt-05.8, Geneseq_21, PIR-80 sequence databases did not reveal any identity to even a single cyclin even though the scoring went as low as 7.4% identity. It is further noted that US Patent No. 6,479,483 specifically teaches that cyclins sequentially regulate cdks and are characterized by a 100 amino acid homology region termed the "cyclin box" which is involved in binding a protein kinase partner. Thus, it appears that this suggested utility is based on a 32% identity to 58% of the consensus protein/protein cyclin binding domain which is an identity of 18% to cyclin H. However, the art recognizes that sequence identity cannot be predictably used to predict the function of a protein. In particular, Bowie et al (Science, 1990, 257:1306-1310) teach that an amino acid sequence encodes a message that determines the shape and function of a protein and that it is the ability of these proteins to fold into unique three-dimensional structures that allows them to function and carry out the instructions of the genome and further teaches that the problem of predicting protein structure from sequence data and in turn utilizing predicted structural determinations to ascertain functional aspects of the protein is extremely complex. (col 1, p. 1306). Bowie et al further teach that while it is known that many amino acid substitutions are possible in any given protein, the position within the protein's sequence where such amino acid

substitutions can be made with a reasonable expectation of maintaining function are limited. Certain positions in the sequence are critical to the three dimensional structure/function relationship and these regions can tolerate only conservative substitutions or no substitutions (col 2, p. 1306). The sensitivity of proteins to alterations of even a single amino acid in a sequence are exemplified by Burgess et al (J of Cell Bio. 111:2129-2138, 1990) who teach that replacement of a single lysine reside at position 118 of acidic fibroblast growth factor by glutamic acid led to the substantial loss of heparin binding, receptor binding and biological activity of the protein and by Lazar et al (Molecular and Cellular Biology, 1988, 8:1247-1252) who teach that in transforming growth factor alpha, replacement of aspartic acid at position 47 with alanine or asparagine did not affect biological activity while replacement with serine or glutamic acid sharply reduced the biological activity of the mitogen. These references demonstrate that even a single amino acid substitution will often dramatically affect the biological activity and characteristics of a protein. Clearly, with only a 32% identity to a 58 amino acid domain of cyclin H, wherein the search by the Office did not identify even a single cyclin with identity to MCT-1, the function of the SEQ ID NO:8 polypeptide could not be predicted, based on sequence similarity with cyclin H, nor would it be expected to be the same as that of cyclin H. Further, Scott et al (Nature Genetics, 1999, 21:440-443) teach that the gene causing Pendred syndrome encodes a putative transmembrane protein designated pendrin. Based on sequence similarity data, the authors postulated that the putative protein was deemed to be a member of sulfate transport protein family since the putative protein had a 29% identity to rat sulfate-anion transporter, 32% similarity to human diastrophic dysplasia sulfate transporter and 45% similarity to the human sulfate transporter downregulated in adenoma.

However, upon analyzing the expression and kinetics of the protein, the data revealed no evidence of sulfate transport activity wherein results revealed that pendrin functioned as a transporter of chloride and iodide. Scott et al suggest that these results underscore the importance of confirming the function of newly identified gene products even when database searched reveal significant homology to proteins of known function (page 411, 1st column, 4th paragraph). In addition, Bork (Genome Research, 2000,10:398-400) clearly teaches the pitfalls associated with comparative sequence analysis for predicting protein function because of the known error margins for high-throughput computational methods. Bork specifically teaches that computational sequence analysis is far from perfect, despite the fact that sequencing itself is highly automated and accurate (p. 398, col 1). One of the reasons for the inaccuracy is that the quality of data in public sequence databases is still insufficient. This is particularly true for data on protein function. Protein function is context dependent, and both molecular and cellular aspects have to be considered (p. 398, col 2). Conclusions from the comparison analysis are often stretched with regard to protein products (p. 398, col 3). Furthermore, recent studies show that alternative splicing might affect more than 30% of human genes and the number of known post-translational modifications of gene products is increasing constantly so that complexity at protein level is enormous. Each of these modifications may change the function of respective gene products drastically (p. 399, col 1). Further, although gene annotation via sequence database searches is already a routine job, even here the error rate is considerable (p. 399, col 2). Most features predicted with an accuracy of greater than 70% are of structural nature and at best only indirectly imply a certain functionality (see legend for table 1, page 399). As more sequences are added and

as errors accumulate and propagate it becomes more difficult to infer correct function from the many possibilities revealed by database search (p. 399para bridging cols 2 and 3). The reference finally cautions that although the current methods seem to capture important features and explain general trends, 30% of those feature are missing or predicted wrogngly. This has to be kept in mind when processing the results further (p. 400, para bridging cols 1 and 2). The teachings of Bork are clearly illustrated by US Pub 20030105000 specifically teaches on page 73 that the SH2 domain of Grb14 is 81% similar to the SH2 domain of Grb7 on the amino acid level, but although Grb7 binds to ErbB2, Grb14 does not bind to ErbB2. Further, although the SH2 domain of Grb2 is only 50 % similar to Grb 7 on the amino acid level, both Grb2 and Grb7 bind to the same site on ErbB2. Thus, sequence identity or similarity alone can not be used to predict the function of a protein. Given the above, it is clear that the suggested utility for the polypeptide to which the claimed antibody binds of a cell cycle regulatory protein is not a substantial utility because additional work must be done in order to establish whether or what role MCT-1 plays in the cell cycle given that the only information given about the putative role of MCT-1 as a cell cycle regulator is that it has limited identity to cyclin H.

As drawn to utility (3) the diagnosis of cancer, the specification teaches that MCT-1 gene is amplified in the HUT 78 cell line and that in NIH 3T3 cells transfected with a MCT-1 construct, which constitutively expressed MCT-1 protein, the G1 phase of the cell cycle was shortened and promotes anchorage independent growth. However, when primary cancer samples were assayed, MCT-1 amplification was not detected in any of these primary cancer samples. Given that the specification appears to equate amplification with differential expression

of protein as exemplified in the HUT 78 cell line, this finding strongly suggests that the primary cancer cells do not differentially express MCT-1 protein, and the claimed invention lacks substantial utility because additional work would be required in order to establish that the MCT-1 protein is a marker that is useful for the diagnosis of cancer. In particular, the art recognizes that the characteristics of cultured cell lines generally differ significantly from the characteristics of the primary tumor. As discussed in Freshney (Culture of Animal Cells, A Manual of Basic Technique, Alan R. Liss, Inc., 1983, New York, p4), it is recognized in the art that there are many differences between cultured cells and their counterparts *in vivo*. These differences stem from the dissociation of cells from a three-dimensional geometry and their propagation on a two-dimensional substrate. Specific cell interactions characteristic of histology of the tissue are lost. The culture environment lacks the input of the nervous and endocrine systems involved in homeostatic regulation in vivo. Without this control, cellular metabolism may be more constant *in vitro* but may not be truly representative of the tissue from which the cells were derived. This has often led to tissue culture being regarded in a rather skeptical light (p. 4, see Major Differences *In Vitro*). Further, Dermer (Bio/Technology, 1994, 12:320) teaches that, a petri dish cancer is a poor representation of malignancy, with characteristics profoundly different from the human disease. Dermer further teaches that when a normal or malignant cell adapts to immortal life in culture, it takes an evolutionary-type step that enables the new line to thrive in its artificial environment and thus transforms a cell from one that is stable and differentiated to one that is not. The reference states that evidence of the contradictions between life on the bottom of a lab dish and in the body has been in the scientific literature for more than 30 years. Clearly it is well

known in the art that cells in culture exhibit characteristics different from those *in vivo* and cannot duplicate the complex conditions of the *in vivo* environment involved in host-tumor and cell-cell interactions. Further, the art recognizes the problem of molecular artifacts associated with cell culture. For example, Drexler et al (Leukemia and Lymphoma, 1993, 9:1-25) specifically teach, in the study of Hodgkin and Reed-Sternberg cancer cells in culture, that the acquisition or loss of certain properties during adaptation to culture systems cannot be excluded. This is exemplified by the teachings of Zellner et al (Clin. Can. Res., 1998, 4:1797-17802) who specifically teach that products are overexpressed in glioblastoma (GBM)-derived cell lines which are not overexpressed *in vivo*. Drexler et al further teach that only a few cell lines containing cells that resemble the *in-vivo* cancer cells have been established and even for the *bona fide* cancer cell lines it is difficult to prove that the immortalized cells originated from a specific cancer cell (see attached abstract). Further, Embleton et al (Immunol Ser, 1984, 23:181-207) specifically teaches that in procedures for the diagnosis of osteogenic sarcoma, caution must be used when interpreting results obtained with monoclonal antibodies that had been raised to cultured cell lines and specifically teach that cultured tumor cells may not be antigenically typical of the tumor cell population from which they were derived and it is well established that new artifactual antigens can occur as a result of culture (see attached abstract). Hsu (in Tissue Culture Methods and Applications, Kruse and Patterson, Eds, 1973, Academic Press, NY, see abstract, p.764) specifically teaches that it is well known that cell cultures *in vitro* frequently change their chromosomal constitutions (see abstract). Given the above, it is clear that the suggested utility for the polypeptide to which the claimed antibody of being useful for the diagnosis of cancer, based only on the

cell culture studies disclosed is not a substantial utility because additional work must be done in order to establish whether or not the polypeptide to which the antibody binds can in fact be used for diagnosis.

Although the specification goes on to state that "nonetheless, it appears that MCT-1 overexpression contributes to deregulated cell cycle progression and proliferation *in vitro*" in some cell lines, it appears that the finding of MCT-1 effects on cells in culture is an artifact of cultured cells and constitutive expression in an artificial system and the polypeptides to which the claimed antibody binds do not have substantial utility because additional work must be done to determine if MCT-1 is differentially expressed in cancer cells compared to normal controls and whether or not it is useful for the diagnosis of cancer.

Finally, even though the instant inventors found MCT-1 gene to be amplified in a cultured cell line with concomitant overexpression of protein, Pollack et al (Nature Genetics, 1999, 23:41-46) specifically teaches that in an assay of 3195 genes it was found that most genes in cancer cells are not either amplified or overexpressed (see Figure 5, page 44) and that most highly expressed genes are not amplified, and not all amplified genes are highly expressed (p. 45, col 1). Thus, the polypeptides to which the claimed antibody binds do not have substantial utility because additional work must be done to determine whether MCT-1 protein is differentially expressed in primary cancer tissue compared to control in order to determine whether the polypeptide to which the claimed antibody binds is useful for the diagnosis of cancer.

As drawn to the claimed antibodies, the specification further teaches that antibodies which bind with specificity to MCT-1 are useful for detecting the presence of MCT-1 in a cell and thus can be used to determine whether a cell is a

tumor cell. However, the MPEP at section 2107.01 provides teachings of how to identify situations that require further research to identify or reasonably confirm a real world context of use wherein a claimed invention does not have substantial utility. The MPEP specifically includes in the group of situations requiring further research "A method of assaying for or identifying a material that itself has no ..... substantial utility".

Since the asserted utility of the claimed antibody is for assaying for or identifying the polypeptide of SEQ ID NO:8, since the polypeptide of SEQ ID NO:8 does not have substantial utility for the reasons set forth above, the claimed antibody also does not have substantial utility. The specification essentially gives an invitation to experiment wherein the artisan is invited to elaborate a functional use for the claimed antibodies.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7. Claims 32-37, 40-41 are rejected under 35 U.S.C. 112, first paragraph.

Specifically, since the claimed invention is not supported by a substantial utility for the reasons set forth in the rejection under 35 USC 101 above, one skilled in the art clearly would not know how to use the claimed invention.

8. If Applicant were able to overcome the rejections set forth above,

Claims 40-41 would still be rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a composition/kit comprising

the antibody of claim 32 does not reasonably provide enablement for a pharmaceutical composition/a kit comprising a pharmaceutical composition. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to use the invention commensurate in scope with these claims.

The claims are drawn to a pharmaceutical composition comprising the antibody of claim 32 and a kit comprising said pharmaceutical composition.

The specification teaches that monoclonal antibodies which bind with specificity to MCT-1 may be generated using known methods. The antibodies are useful for detecting the presence of MCT-1 in a cells and thus can be used to detect the presence of MCT-1 in an extract prepared using the cell, using any immunoblotting, immunosorption or immunoprecipitation technique, (p. lines 7-17).

One cannot extrapolate the teaching of the specification to the scope of the claims because implicit in the recitation of a pharmaceutical composition is the *in vivo* use thereof for treatment. Given that the only treatment mode described in the specification is treatment of cancer, implicit in the claimed pharmaceutical composition is a composition for treatment of cancer. However, other than teaching that antibodies can be generated and that they can be used to detect the presence of MCT-1 in cells, apparently by *in vitro* methods, no guidance drawn to the treatment of cancer or any other disease is found in the specification as originally filed. However, those of skill in the art recognize that the art of anticancer drug discovery for cancer therapy is highly unpredictable, for example, Gura (Science, 1997, 278:1041-1042) teaches that researchers face the problem of sifting through potential anticancer agents to find ones promising enough to make

human clinical trials worthwhile and teach that since formal screening began in 1955, many thousands of drugs have shown activity in either cell or animal models but that only 39 have actually been shown to be useful for chemotherapy (p. 1041, see first and second para). Because of the known unpredictability of the art, in the absence of *in vivo* evidence, no one skilled in the art would accept the assertion that the invention would function as claimed, that is as a pharmaceutical composition. Further, the refractory nature of cancer to drugs is well known in the art. Jain (Sci. Am., 1994, 271:58-65) teaches that tumors resist penetration by drugs (p.58, col 1) and that scientists need to put expanded effort into uncovering the reasons why therapeutic agents that show encouraging promise in the laboratory often turn out to be ineffective in the treatment of common solid tumors (p. 65, col 3). Curti (Crit. Rev. in Oncology/Hematology, 1993, 14:29-39) teaches that solid tumors resist destruction by chemotherapy agents and that although strategies to overcome defense mechanisms of neoplastic cells have been developed and tested in a number of patients, success has been limited and further teaches that it is certainly possible that cancer cells possess many as yet undefined additional molecular mechanisms to defeat chemotherapy treatment strategies and if this is true, designing effective chemotherapeutic regimens for solid tumors may prove a daunting task (para bridging pages 29-30) and concludes that knowledge about the physical barriers to drug delivery in tumors is a work in progress (p. 36, col 2). The specification provides insufficient guidance with regard to these issues and provides no working examples which would provide guidance to one skilled in the art and no evidence has been provided which would allow one of skill in the art to predict that the invention would function as claimed and given the information in the art, no one of skill in the art would believe it more likely than not that the

invention would function as claimed, that is as a pharmaceutical, in the *in vivo* environment with a reasonable expectation of success. In view of the above, one of skill in the art would be forced into undue experimentation to practice the claimed invention.

10. Claim 33 is rejected under 35 USC 112, first paragraph, as the specification does not contain a written description of the claimed invention. The limitation of an antibody that binds with specificity to a portion of MCT-1 wherein the portion includes at least about ten consecutive amino acid homologous residues of residues 1-114 of SEQ ID Nos:2 or SEQ I.D. 8 in the claim newly added on September 17, 2004, has no clear support in the specification and the claims as originally filed. Applicant points to support for the newly added antibody claims in the specification at page 18, lines 9-17 and page 47, lines 1-7. A review of page 18, lines 9-17 reveals support only for generation, by known methods, of monoclonal and polyclonal antibodies that bind to MCT-1 and the use of those antibodies for detection of MCT-1. A review of page 47, lines 1-7 reveals support only for generation of polyclonal antibodies against MCT-1 with a synthetic peptide consisting of the first 20 amino acids at the amino terminus of MCT-1. The cited support has been considered but has not been found persuasive because none of the cited support discloses or suggests an antibody that binds with specificity to a portion of MCT-1 wherein the portion includes at least about ten consecutive amino acid homologous residues of 1-114 of SEQ ID Nos:2 or SEQ ID NO: 8. The subject matter claimed in claim 33 broadens the scope of the invention as originally disclosed in the specification.

11. Claim 34 is rejected under 35 USC 112, first paragraph, as the specification does not contain a written description of the claimed invention. The limitation of

an antibody that binds with specificity to a portion of MCT-1 wherein the portion includes at least about ten consecutive amino acid of SEQ ID No: 8 in the claim newly added on September 17, 2004, has no clear support in the specification and the claims as originally filed. Applicant points to support for the newly added antibody claims in the specification at page 18, lines 9-17 and page 47, lines 1-7.A review of page 18, lines 9-17 reveals support only for generation, by known methods, of monoclonal and polyclonal antibodies that bind to MCT-1 and the use of those antibodies for detection of MCT-1. A review of page 47, lines 1-7 reveals support only for generation of polyclonal antibodies against MCT-1 with a synthetic peptide consisting of the first 20 amino acids at the amino terminus of MCT-1. The cited support has been considered but has not been found persuasive because none of the cited support discloses or suggests an antibody that binds with specificity to a portion of MCT-1 wherein the portion includes at least about ten consecutive amino acid residues of SEQ ID No:8. The subject matter claimed in claim 34 broadens the scope of the invention as originally disclosed in the specification.

12. Claim 35 is rejected under 35 USC 112, first paragraph, as the specification does not contain a written description of the claimed invention. The limitation of an antibody that binds with specificity to a portion of MCT-1 wherein the portion includes amino acid residues 1-20 of SEQ ID No: 8 in the claim newly added on September 17, 2004, has no clear support in the specification and the claims as originally filed. Applicant points to support for the newly added antibody claims in the specification at page 18, lines 9-17 and page 47, lines 1-7.A review of page 18, lines 9-17 reveals support only for generation, by known methods, of monoclonal and polyclonal antibodies that bind to MCT-1 and the use of those antibodies for

detection of MCT-1. A review of page 47, lines 1-7 reveals support only for generation of polyclonal antibodies against MCT-1 with a synthetic peptide consisting of the first 20 amino acids at the amino terminus of MCT-1. The cited support has been considered but has not been found persuasive because none of the cited support discloses or suggests an antibody that binds with specificity to a portion of MCT-1 wherein the portion includes amino acid residues 1-20 of SEQ ID No:8. The subject matter claimed in claim 35 broadens the scope of the invention as originally disclosed in the specification.

13. Claims 40-41 are rejected under 35 USC 112, first paragraph, as the specification does not contain a written description of the claimed invention. The limitation of a pharmaceutical composition comprising the antibody of claim 32/kit comprising said pharmaceutical composition and a reagent for detecting the antibody in the claims newly added on September 17, 2004, has no clear support in the specification and the claims as originally filed. Applicant points to support for the newly added antibody claims in the specification at page 18, lines 9-17 and page 47, lines 1-7.A review of page 18, lines 9-17 reveals support only for generation, by known methods, of monoclonal and polyclonal antibodies that bind to MCT-1 and the use of those antibodies for detection of MCT-1. A review of page 47, lines 1-7 reveals support only for generation of polyclonal antibodies against MCT-1 with a synthetic peptide consisting of the first 20 amino acids at the amino terminus of MCT-1. The cited support has been considered but has not been found persuasive because none of the cited support discloses or suggests a pharmaceutical composition comprising an antibody that binds with specificity to a portion of MCT-1. Further, Applicant points to support for the claimed kit at page 33, lines 1-20. A review of page 33, lines 1-20 reveals only support for kits

comprising a pharmaceutical composition of the invention and instructional material, further comprising a delivery device for delivering the composition, for example a squeezable spray bottle, a syringe, a needle, a tampon. The cited support has been considered but has not been found persuasive because none of the cited support discloses or suggests a pharmaceutical composition comprising an antibody that binds with specificity to a portion of MCT-1 or a kit comprising said antibody and a reagent for detecting the antibody. A further review of the specification reveals teachings drawn to pharmaceutical compositions, however the specification specifically states that "the invention encompasses the preparation and use of medicaments and pharmaceutical compositions comprising either or both of an isolated nucleic acid of the invention and an isolated polypeptide of the invention as an active ingredient" at page 20, lines 24-27. However, there is no mention of a pharmaceutical composition comprising the claimed antibody in this section of the specification or in any other section of the specification reviewed by Examiner. The subject matter claimed in claims 40-41 broadens the scope of the invention as originally disclosed in the specification.

14. Claims 32, 36-37, 40-41 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 32, 36-37, 40-41 are indefinite in the recitation of the term MCT-1 as the sole means of identifying the polypeptide to which the claimed antibody binds. The use of laboratory designations only to identify a particular polypeptide renders the claims indefinite because different laboratories may use the same laboratory designations to define completely distinct polypeptides. Amendment of the claims

to include a unique identifier, such as a sequence number, which unambiguously defines the polypeptide to which the claimed antibody binds, is required.

Claims 33-35 are confusing because the claims recite the phrase "wherein the portion includes at least ten consecutive amino acid residues", " wherein the portion includes amino acid residues 1-20". The claims are confusing because claim 32, from which claims 33-35 depend, is drawn to an antibody which binds with specificity to a portion of MCT-1. However, it is unclear whether claims 33-35 are drawn to binding to the entire sequence comprising "at least about 10 consecutive residues", "comprising amino acid residues 1-20" or whether the claims are drawn to antibody binding specifically to a portion of SEQ ID NO:2/8 that includes the antibody epitope bound by the antibody as well as additional amino acids, that is at least about ten/ including residues 1-20 of SEQ ID NO:2/8.

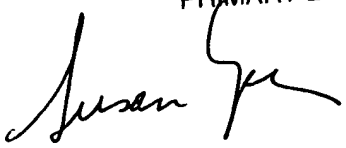
15. No claims allowed.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Susan Ungar, PhD whose telephone number is (571) 272-0837. The examiner can normally be reached on Monday through Friday from 7:30am to 4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey Siew, can be reached at 571-272-0787. The fax phone number for this Art Unit is (571) 273-8300.

Effective, February 7, 1998, the Group and/or Art Unit location of your application in the PTO has changed. To aid in correlating any papers for this application, all further correspondence regarding this application should be directed to Group Art Unit 1642.

SUSAN UNGAR, PH.D
PRIMARY EXAMINER



Susan Ungar
Primary Patent Examiner
July 31, 2006

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